

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the Application:

Claim 1-23 (Canceled).

Claim 24 (New):      A process for depositing a thin film on a surface of a substrate, the process comprising:

introducing a vapor of a first material to the substrate wherein at least a portion of the vapor of the first material adsorbs on the surface of the substrate; then

introducing a vapor of a second material wherein the second material activates the first material to react and form the thin film on the surface of the substrate;

wherein the thin film comprises at least two elements and the thin film is substantially free of elements of the second material;

Claim 25 (New):      The process of claim 24, further comprising:

removing at least a portion of the vapor of the first material that has not adsorbed on the substrate from the vicinity of the substrate before introducing the vapor of the second material; and

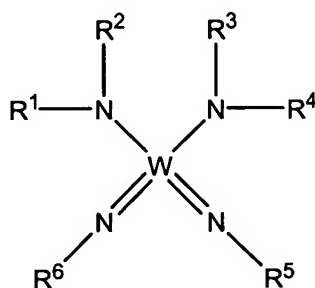
removing at least a portion of the vapor of the second material from the vicinity of the substrate.

Claim 26 (New): The process of claim 24, wherein the thin film comprises tungsten and nitrogen.

Claim 27 (New): The process of claim 24, wherein the first material comprises tungsten, molybdenum, or mixtures thereof.

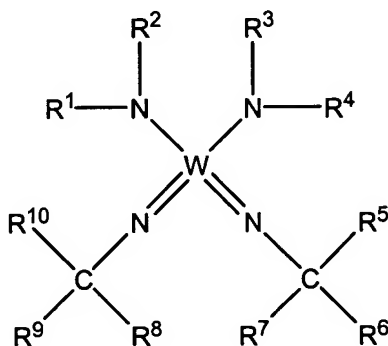
Claim 28 (New): The process of claim 24, wherein the first material comprises one or more compounds comprising tungsten-nitrogen bonds.

Claim 29 (New): The process of claim 28, wherein the one or more compounds comprising tungsten-nitrogen bonds have the general formula



in which  $\text{R}^n$  represents alkyl groups, arylalkyl groups, alkenylalkyl groups, alkynylalkyl groups, fluoroalkyl groups or alkyl groups substituted with other atoms or groups selected to enhance the volatility of the compound, where  $\text{R}^n$  is any one of  $\text{R}^1$  through  $\text{R}^6$  and where the  $\text{R}^n$  may be the same or different from each other.

Claim 30 (New): The process of claim 28, wherein the one or more compounds comprising tungsten-nitrogen bonds have the general formula



in which R<sup>n</sup> represents alkyl groups, arylalkyl groups, alkenylalkyl groups, alkynylalkyl groups, fluoroalkyl groups or alkyl groups substituted with other atoms or groups selected to enhance the volatility of the compound, where R<sup>n</sup> is any one of R<sup>1</sup> through R<sup>10</sup> and where the R<sup>n</sup> may be the same or different from each other.

Claim 31 (New): The process of claim 30, wherein R<sup>1</sup> through R<sup>10</sup> are methyl.

Claim 32 (New): The process as in claim 30 wherein R<sup>1</sup> and R<sup>4</sup> through R<sup>10</sup> are methyl and R<sup>2</sup> and R<sup>3</sup> are ethyl.

Claim 33 (New): The process of claim 24, wherein the first material comprises one or more compounds comprising molybdenum-nitrogen bonds.

Claim 34 (New): The process of claim 24, wherein the second material comprises a Lewis base.

Claim 35 (New): The process of claim 34, wherein the Lewis base comprises ammonia.

Claim 36 (New): The process of claim 34, wherein the Lewis base comprises pyridine.

Claim 37 (New): The process of claim 24, wherein the second material comprises a hydrogen plasma.

Claim 38 (New): The process of claim 24, wherein the second material comprises at least one hydrogen atom.

Claim 39 (New): The process of claim 24, wherein the substrate is maintained at a temperature in the range of 200 °C to 400 °C.

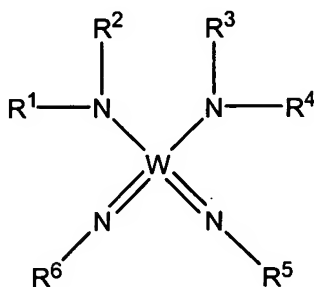
Claim 40 (New): A process for depositing a thin film on a surface of a substrate, the process comprising:

introducing a vapor of a first material and a vapor of a second material to the surface of the substrate; wherein

the first material comprises one or more compounds comprising a tungsten-nitrogen bond; and

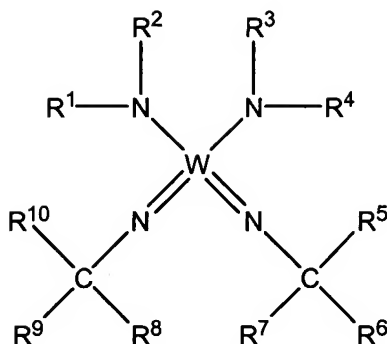
the second material comprises a Lewis base.

Claim 41 (New): The process of claim 40, wherein the one or more compounds comprising a tungsten-nitrogen bond have the general formula



in which R<sup>n</sup> represents alkyl groups, arylalkyl groups, alkenylalkyl groups, alkynylalkyl groups, fluoroalkyl groups or alkyl groups substituted with other atoms or groups selected to enhance the volatility of the compound, where R<sup>n</sup> is any one of R<sup>1</sup> through R<sup>6</sup> and where the R<sup>n</sup> may be the same or different from each other.

Claim 42 (New): The process of claim 40, wherein the one or more compounds comprising tungsten-nitrogen bonds have the general formula



in which R<sup>n</sup> represents alkyl groups, arylalkyl groups, alkenylalkyl groups, alkynylalkyl groups, fluoroalkyl groups or alkyl groups substituted with other atoms or groups selected to enhance the volatility of the compound, where R<sup>n</sup> is any one of R<sup>1</sup> through R<sup>10</sup> and where the R<sup>n</sup> may be the same or different from each other.

Claim 43 (New): The process of claim 42, wherein R<sup>1</sup> through R<sup>10</sup> are methyl.

Claim 44 (New): The process as in claim 42 wherein R<sup>1</sup> and R<sup>4</sup> through R<sup>10</sup> are methyl and R<sup>2</sup> and R<sup>3</sup> are ethyl.

Claim 45 (New): The process of claim 40, wherein the Lewis base comprises ammonia.

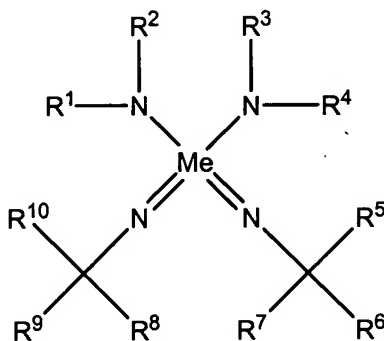
Claim 46 (New): The process of claim 40, wherein the Lewis base comprises pyridine.

Claim 47 (New): The process of claim 40, wherein the second material comprises a hydrogen plasma.

Claim 48 (New): The process of claim 40, wherein the second material comprises at least one hydrogen atom.

Claim 49 (New): The process of claim 40, wherein the substrate is maintained at a temperature in the range of 200 °C to 400 °C.

Claim 50 (New): A process for depositing a material, the process comprising:  
introducing a compound having a formula



to a surface;

wherein Me is W or Mo,  $R^n$  represent alkyl groups, arylalkyl groups, alkenylalkyl groups, alkynylalkyl groups, fluoroalkyl groups or alkyl groups substituted with other atoms or groups selected to enhance the volatility of the compound, where  $R^n$  is any one of  $R^1$  through  $R^{10}$  and the  $R^n$  may be the same or different from each other.

Claim 51 (New): The process of claim 50, wherein Me is W.

Claim 52 (New): The process of claim 50, further comprising:

introducing a vapor of a second material, wherein

the compound comprises at least two elements of the deposited material; and

the deposited material is substantially free of elements of the second material.

Claim 53 (New): The process of claim 52, wherein the second material comprises a Lewis base.

Claim 54 (New): The process of claim 53, wherein the Lewis base comprises ammonia.

Claim 55 (New): The process of claim 53, wherein the Lewis base comprises pyridine.

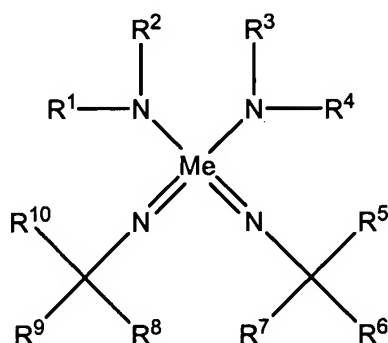
Claim 56 (New): The process of claim 52, wherein the second material comprises a hydrogen plasma.

Claim 57 (New): The process of claim 52, wherein the second material comprises at least one hydrogen atom.



Claim 58 (New): The process of claim 50, wherein the substrate is maintained at a temperature in the range of 200 °C to 400 °C.

Claim 59 (New): A compound having a formula



wherein Me is W or Mo, R<sup>n</sup> represent alkyl groups, arylalkyl groups, alkenylalkyl groups, alkynylalkyl groups, fluoroalkyl groups or alkyl groups substituted with other atoms or groups selected to enhance the volatility of the compound, where R<sup>n</sup> is any one of R<sup>1</sup> through R<sup>10</sup> and the R<sup>n</sup> may be the same or different from each other.

Claim 60 (New): The compound of claim 59, wherein Me is W.

Claim 61 (New): The compound of claim 59 wherein R<sup>1</sup> through R<sup>10</sup> are methyl.

Claim 62 (New): The compound of claim 60, wherein Me is W.

Claim 63 (New): An electrically conducting electrode comprising an electrically conductive thin film produced by the process of claim 24.

Claim 64 (New): An electrical capacitor comprising at least one electrically conducting electrode of claim 63.

Claim 65 (New): An electrically conducting electrode comprising an electrically conductive thin film produced by the process of claim 30.

Claim 66 (New): An electrical capacitor comprising at least one electrically conducting electrode of claim 65.

Claim 67 (New): A barrier layer produced by the process of claim 24, wherein the barrier layer comprises a metal diffusion barrier layer in a microelectronic device.

Claim 68 (New): The barrier layer of claim 67 having a thickness from 1 nm to 100 nm.

Claim 69 (New): A barrier layer produced by the process of claim 30, wherein the barrier layer comprises a metal diffusion barrier layer in a microelectronic device.

Claim 70 (New): The barrier layer of claim 69 having a thickness from 1 nm to 100 nm.

Claim 71 (New): A microelectronic device comprising:

- a substrate;
- at least one feature comprising copper; and
- at least one layer of tungsten nitride produced by the process of claim 29, located between the substrate and the at least one feature comprising copper.